

Original Article

Genderwise comparison of barriers to accessing oral healthcare facilities in peri-urban communities of Sargodha, Pakistan

Umer Javed ^{a,*}, Sehrish Zafar ^b, Sana Javed ^b

^a Royal Blackburn Teaching Hospital, United Kingdom

^b Rai Medical College, Sargodha, Pakistan

* Correspondence: drumerjavediqbal@gmail.com; Telephone: +447882427284



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Abstract

Oral health is one of the significant indicators determining the population's overall health and well-being status. Good oral health is a fundamental human right irrespective of demographic differences. Therefore, this study compared the barriers to accessing oral healthcare facilities among males and females living in peri-urban communities. This comparative cross-sectional study was conducted in the peri-urban communities of Sargodha. Using the random number method, this study used a simple random sampling technique to identify 320 houses; 160 males and 160 females who met the inclusion and exclusion criteria were interviewed. Data were analyzed using descriptive statistics and a chi-square test. The results showed that more males (78.13%) were users of dental services than females (53.75%); however, a meagre number of both genders were making regular visits to oral healthcare facilities. Expensive treatment was one of the significant barriers to visiting oral healthcare facilities for males (85.00%) and females (75.63%). Moreover, time shortage was a significant barrier, mainly reported by almost three-fourths of the males (72.50%), but fewer females (20.63%) considered it a vital barrier ($p < 0.05$). Furthermore, for both genders, various barriers varied widely, including fear of the dentist, avoiding treatment, lack of awareness, family pressure to avoid visiting clinics, and reliance on home remedies ($p < 0.05$). Therefore, this study concluded that more males than females visit oral healthcare services. However, most males and females do not visit oral healthcare facilities for regular checkups but for any oral health problem ailment. Both males and females make out-of-pocket expenditures to afford oral health services. Males preferred private oral healthcare facilities, whereas females preferred public healthcare facilities to provide oral healthcare services. Males and females observed the cost of treatment for oral healthcare issues, shortage of time, and fear as the key barriers to accessing oral healthcare facilities.

Keywords

Oral health; Health facility; Health services accessibility; Gender equity; Social deprivation

1. Introduction

An individual's health starts from the mouth, which is among the significant indicators to determine the population's overall health and well-being status. However, in most countries, oral health is attributed to an individual's health rather than social responsibility to improve the nation's overall oral health [1]. Poor oral hygiene not only causes oral disease and changes in food and speech patterns but is also associated with other noncommunicable diseases, including cardiovascular diseases, respiratory diseases, and cancers [1, 2, 3]. In 2017, 3.5 billion people had oral diseases and lost 15 million disability-adjusted life years, resulting in a higher prevalence of oral diseases compared to other medical conditions across the globe [4]. Oral diseases in recent years have accounted for

298 billion dollars for treatment and 144 billion dollars for loss of productivity worldwide [5].

Access to oral healthcare services in terms of physical availability of the oral healthcare facility, financial affordability, timely availability of services, and quality of oral healthcare services to people living in peri-urban or rural communities results in reduced morbidity and mortality, which helps improve the overall quality of life of a person [6, 7]. Along with the factors related to the oral healthcare system, personal factors have a role in oral health practices and health-seeking behaviors [8]. Studies have reported gender as one of the critical determinants for oral healthcare; unfortunately, this is an overlooked aspect of healthcare among both genders, men and women [9]. Women have demonstrated better behaviors and literacy regarding oral health, positive attitudes toward visiting oral healthcare facilities, and better adherence to the treatment [10]. This can be linked to the influence of a better literacy level among women than men regarding healthcare and oral health [11]. Brushing habits, times and frequency, and dental floss are observed more frequently among women [12]. Men, compared to women, neglect and compromise their oral health; one-third of men are less likely to visit oral healthcare facilities for preventive services than women and visit oral healthcare facilities when a simple oral health problem has transformed into a chronic oral health condition [13, 14, 15].

People in developed and developing countries vary widely regarding global access to oral healthcare facilities [16]. Oral healthcare and dental treatments in developed countries are expensive and account for 5 to 20% of out-of-pocket health expenditures [1]. Financial barriers are a key limitation to access to oral healthcare facilities; only 20% of women and 15% of men have dental care because of the higher costs of oral healthcare [17, 18]. When the cost of oral healthcare in developed countries is compared with that in developing countries, it has been observed that 57.6% of Australians visited dentists for oral healthcare; however, only 10.7% of Pakistani people visited any oral healthcare facility [19].

The prevalence of periodontal disease is higher than that of other oral health diseases worldwide, as severe periodontitis affects 10.5 to 12.0% of the world's population, making it the sixth most prevalent disease, affecting 743 million individuals worldwide [20]. Gender-related factors play an important role in the higher prevalence of periodontal diseases, making women more vulnerable to dental diseases than men [21]. In developing countries, women have less access to healthcare facilities than men, which impacts individuals' quality of life [22]. Pakistan has a minimal number of oral healthcare facilities as a part of its healthcare system. The geographical distribution of these facilities favors residents of urban areas more than those residing in peri-urban or rural settings [6, 23]. In addition, an individual's health-seeking behaviors also impact the timely accessibility of healthcare facilities [6]. There is a dearth of information available about gender-based barriers to accessing oral healthcare facilities in local settings. Therefore, this study compared the barriers to accessing oral healthcare facilities among males and females living in the peri-urban communities of Sargodha, Pakistan.

2. Material and methods

2.1. Ethical approval

The Ethics Review Committee of Haiderabad Town Clinic, Sargodha, approved this study (No. ERC-HTC-22-030).

2.2. Study design

This is a comparative cross-sectional study.

2.3. Study duration

This study was conducted between August and September 2022.

2.4. Study setting

The study was conducted in peri-urban communities in Sargodha, encompassing Jhal Chakian, Haiderabad Town, and Luddy Wala. Sargodha district has a total area of 1,455 square kilometers and a population of 1,537,866 [24].

2.5. Inclusion and exclusion criteria

We recruited the general population of the communities, including males and females over 18 years who can communicate in local languages, i.e., English, Urdu, and Punjabi, and could be of any caste, religion, socioeconomic status, employment status, and education level, to ensure diversity of the sample. However, individuals who lacked a history of living in the peri-urban community over the past five years and could not provide written informed consent before the data collection were excluded from the study.

2.6. Sampling technique and sample size

The minimum sample size needed to maintain a 5% margin of error, a 95% confidence interval, and a 28% response distribution was calculated as 306 using an online sample size calculator. However, the sample size was further increased to 320 to cater to nonresponses, dropouts, and refusals. Therefore, using a random sampling technique, 320 houses were selected through the random number method, of which 160 males and 160 females who met the inclusion and exclusion criteria were interviewed.

2.7. Questionnaire development

Public health experts developed a structured questionnaire with a few open-ended questions based on previous studies [25, 26]. The questionnaire collected information on sociodemographics (i.e., age, gender, education, marital status, and monthly household income), utilization of dental services (user of dental services, regular visits to the dentist, the reason for visiting the dentist, last dental visit, treatment payment source, preferred healthcare facilities, and last dental treatment received), and barriers to accessing oral healthcare facilities (i.e., expensive treatment, time shortage, fear of dentists, appointment issues, distance issues, awareness, issues, avoiding treatment, relying on alternate treatments, prefer not to mention).

The study questionnaire was pretested on ten people for acceptability and ease of understanding. As a result, the principal investigator slightly modified the final questionnaire before its final use.

2.8. Data collection

The data collection team conducted face-to-face interviews by visiting the participants' houses. On average, each interview lasted between five and ten minutes.

2.9. Statistical analysis

After the completion of the interviews, data were analyzed using Statistical Package for Social Sciences software [version 25.00 (IBM Corp., Armonk, NY, USA)]. Frequencies, percentages, and measures of central tendency were calculated for the collected data. The chi-square test was used to compare the barriers to accessing oral healthcare facil-

ties among males and females living in peri-urban communities. The significance level (*p* value) was taken as < 0.05.

3. Results

Table 1 shows that on average, male study participants were 42.21 ± 5.57 years old, while females were 41.59 ± 6.02 years old. In addition, male participants were more educated (12.23 ± 4.01) than their female counterparts (10.47 ± 4.36 years). On average, males and females reported approximately the same monthly household income, i.e., Pakistani rupees (PKR) $40,317.39 \pm 9,849.24$ and $40,600.01 \pm 4,810.52$, respectively.

Table 1. Sociodemographic profile of the study participants (n = 320)

Demographic Factors	Male	Female
	n = 160	n = 160
Age (in years)	42.21 ± 5.57	41.59 ± 6.02
Education (in years)	12.23 ± 4.01	10.47 ± 4.36
Monthly household income (in PKR)	$40,317.39 \pm 9,849.24$	$40,600.01 \pm 4,810.52$
Marital status, N (%)	Single	5 (3.13)
	Married	148 (92.50)
	Divorced	5 (3.13)
	Widow/er	2 (1.25)
		6 (3.75)
		146 (91.25)
		7 (4.38)
		1 (0.63)

Table 2 shows that more males (78.13%) were users of dental services than females (53.75%); however, a meagre number of both genders were making regular visits to oral healthcare facilities. The table further corroborates that 28.13% of males and 58.75% of females never visited oral healthcare facilities. In addition, both genders had a contrary choice of healthcare facilities, as 83.75% of females preferred to visit public oral healthcare facilities, whereas 86.88% of males preferred private facilities.

Table 2. Utilization of dental services by study participants (n = 320)

Description	Male	Female
	n = 160	n = 160
The user of dental services	N (%)	N (%)
	Yes	125 (78.13)
Regular visits to the oral healthcare facility	No	86 (53.75)
	Yes	35 (21.88)
Reason for visiting the dentist	34 (21.25)	74 (46.25)
	No	15 (9.38)
Treatment payment source	126 (78.75)	145 (90.63)
	Emergency	13 (8.13)
	Checkup	7 (4.38)
Preferred oral healthcare facilities	102 (63.75)	45 (28.13)
	Not visited	59 (36.88)
The last dental treatment received (in years), Mean \pm SD	Subsidized	43 (58.75)
	Out of pocket	21 (13.13)
The last dental treatment received (in years), Mean \pm SD	Public	139 (86.88)
	Private	117 (73.13)
The last dental treatment received (in years), Mean \pm SD	Public	26 (16.25)
	Private	21 (13.13)

Table 3 shows the genderwise comparison of barriers to accessing oral healthcare facilities. Expensive treatment was one of the significant barriers to visiting oral healthcare facilities for males (85.00%) and females (75.63%). The result was statistically significant (*p* < 0.05). In addition, time shortage was a significant barrier, mainly reported

by almost three-fourths of the male study participants (72.50%), but fewer females (20.63%) considered it a vital barrier. Again, the genderwise comparison showed this result as significant ($p < 0.05$). Table 3 further shows that both genders considered various barriers significant. However, their importance varied widely. These barriers included fear of the dentist, avoidance of treatment, lack of awareness, family pressure to avoid visiting clinics, and reliance on home remedies.

Table 3. Genderwise comparison of barriers to accessing oral healthcare facilities (n = 320)

Barriers to Accessing Oral Healthcare Facilities	Male	Female	<i>p</i> value *
	n = 160	n = 160	
	N (%)	N (%)	
Expensive treatment	136 (85.00)	121 (75.63)	0.024
Time shortage	116 (72.50)	33 (20.63)	0.001 **
Fear from dentist	25 (15.63)	137 (85.63)	0.001 **
Appointment related issues	13 (8.13)	16 (10.00)	0.349
Difficult access to dental clinics	122 (76.25)	127 (79.38)	0.295
Avoid treatment	138 (86.25)	121 (75.63)	0.011 **
Lack of awareness	60 (37.50)	102 (63.75)	0.001 **
Family pressure to avoid visiting clinics	16 (10.00)	42 (26.25)	0.001 **
Rely on home remedies	30 (18.75)	59 (36.88)	0.001 **

* Data were analyzed by using the Chi-square test. ** Significant value ($p < 0.05$).

4. Discussion

The results of this study showed that more males were users of dental services than females; however, a meagre number of both genders were making regular visits to the oral healthcare facilities. The expensive treatment was one of the significant barriers to visiting oral healthcare facilities for males and females. Moreover, time shortage was a significant barrier, mainly reported by almost three-fourths of the males. However, fewer females considered it a vital barrier. Furthermore, for both genders, various potential barriers varied widely, including fear of the dentist, avoiding treatment, lack of awareness, family pressure to avoid visiting clinics, and reliance on home remedies.

The study reported that most of the males utilized oral healthcare services compared to females. Fewer male respondents than female respondents did not visit a dentist regularly. The number of males is considered satisfactory for oral health services utilization. However, the statistics, as recorded by this study, for females utilizing oral healthcare facilities are not encouraging. The study's results are consistent with another study conducted in Bangalore, India, to determine the utilization of oral healthcare services among adults attending community outreach programs. The study highlighted that males visited dentists more frequently than females [27]. Key reasons highlighted by the study for oral healthcare services utilization included tooth extraction and endodontic treatment [27]. The results of this study are inconsistent with the facts stated by another study, which highlighted that 52.7% of the male respondents did not visit a dentist in one year for oral health issues compared to 36.7% of the female respondents [28]. The study also reported that 88.8% of female respondents had better oral hygiene practices than 60.9% of male respondents [28]. The results are inconsistent with another US study comparing oral healthcare among males and females. The study highlighted that females are more likely to visit and utilize oral healthcare services than males [29].

The current study's results highlighted that most respondents visit oral healthcare services just for checkups, and a proportion do not utilize oral healthcare for routine oral healthcare. The results are consistent with another study performed in Nigeria to deter-

mine barriers to oral healthcare utilization. The study highlighted that 55.8% of the respondents utilized oral healthcare services while experiencing severe pain, and 27.3% never visited a dentist for their oral health issues [30]. The study result is inconsistent with another study conducted in the Kingdom of Saudi Arabia to determine the factors affecting adult access to oral healthcare. The study's results highlighted that 56.7% of the respondents visited oral healthcare services for emergency purposes [2].

The current study's results highlighted that most respondents paid pocket expenditures to finance their oral healthcare. The results are consistent with another study performed in the Kingdom of Saudi Arabia, which highlighted that 82% of the respondents reported making out-of-pocket expenditures and financing their oral healthcare services [2]. The current study also highlighted that most males preferred private oral healthcare facilities to females. This fact can be attributed to the financial affordability of the services, as men are the earning hand and have better financial stability than females, and therefore, males can afford private oral healthcare services, which are expensive compared to public oral healthcare facilities, which are cheaper. Another study also supported that 20% of females and 15% of males cannot afford oral healthcare services and eventually stop dental treatment [17].

The current study highlighted that the financial affordability of oral healthcare services and fear of the dentist are the key barriers male and female respondents face in assessing oral healthcare services. The results of the study are consistent and are supported by different studies. A study in India highlighted that respondents' fear of the dentist is a critical barrier when assessing oral healthcare services [27]. Another study from India aimed to determine health-seeking behaviors among adults and highlighted that fear among people is a significant barrier to assessing oral healthcare services [31]. The current study's finding is also in line with a study performed in Nigeria and highlighted that potential barriers to accessing oral healthcare services among adults include the high cost of oral healthcare services, fear of needles, and feelings of insecurity at the time of dental procedures [30]. Saudi Arabia's study highlighted the high cost of oral healthcare services and the shortage of time by patients as potential barriers to accessing oral healthcare services [2]. An Indian study also supports the current study's findings and highlights that dental anxiety, higher cost, and travel time from home to oral healthcare facilities are key barriers to accessing dental clinics [32].

Although the study covers one of the very important aspects of the healthcare system and highlights gender comparison to the barriers toward using oral healthcare facilities in the peri-urban areas, the study was conducted for a very limited time and with specific objectives that only highlighted a portion of the information and revealed facts from limited information. Furthermore, the study was conducted without any financial aid from any organization and had a limited budget, which limited the duration and scope of the study.

5. Conclusions

Our study concluded that more males than females visited oral healthcare services. However, most males and females do not visit oral healthcare facilities for regular check-ups but for any oral health problem ailment. Both males and females make out-of-pocket expenditures to afford oral health services. Males preferred private oral healthcare facilities, whereas females preferred public healthcare facilities to provide oral healthcare services. Males and females observed the cost of treatment for oral healthcare issues, shortage of time, and fear as the key barriers to accessing oral healthcare facilities.

Author contributions: Conceptualization, UJ, SZ and SJ; methodology, UJ, SZ and SJ; software, SZ and SJ; validation, UJ, SZ and SJ; formal analysis, UJ, SZ and SJ; investigation, SZ and SJ; resources, UJ, SZ and SJ; data curation, UJ, SZ and SJ; writing—original draft preparation, SZ and SJ; writing—review and editing, UJ; visualization, SZ and SJ; supervision, UJ; project administration, SZ and SJ. All authors have read and agreed to the published version of the manuscript.

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Ethics statement: The Ethics Review Committee of Haiderabad Town Clinic, Sargodha, approved this study (No. ERC-HTC-22-030).

Consent to participate: Informed consent was obtained from all participants included in the study.

Data availability: The data supporting this study's findings are available from the corresponding author, Umer, upon reasonable request.

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Conflicts of interest: The authors declare no conflicts of interest.

References

- [1] World Health Organization. Oral health. 2022 [cited 30 November 2022]. Available from: <https://www.who.int/news-room/fact-sheets/detail/oral-health>.
- [2] Almutlaqah MA, Baseer MA, Ingle NA, Assery MK, Al Khadhari MA. Factors affecting access to oral health care among adults in Abha City, Saudi Arabia. *J Int Soc Prev Community Dent.* 2018;8:431-38. https://doi.org/10.4103/jispcd.JISPCD_205_18
- [3] Kane SF. The effects of oral health on systemic health. *Gen Dent.* 2017;65(6):30-4.
- [4] Bernabe E, Marques W, Hernandez CR, Bailey J, Abreu LG, Alipour V, et al. Global, regional, and national levels and trends in burden of oral conditions from 1990 to 2017: A systematic analysis for the global burden of disease 2017 study. *J Dent Res.* 2020;99(4):362-73. <https://doi.org/10.1177/0022034520908533>
- [5] Listl S, Grytten JI, Birch S. What is health economics?. *Community Dent Health.* 2019;36(4):263-75. https://doi.org/10.1922/CDH_4581Listl13
- [6] Khaliq IH, Mahmood HZ, Sarfraz MD, Gondal KM, Zaman S. Pathways to care for patients in Pakistan experiencing signs or symptoms of breast cancer. *Breast.* 2019;46:40-7. <https://doi.org/10.1016/j.breast.2019.04.005>
- [7] Hemani A, Rauf F, Noori MY, Faisal A. Barriers to the access of oral health care in individuals from lower socioeconomic communities in Karachi. *J Liaquat Uni Med Health Sci.* 2017;16(4):218-21. <https://doi.org/10.22442/jlumhs.171640537>
- [8] Ahmed W, Bukhari SF, Aslam M, Irfan F, Fatima R, Ali M. Barriers in access and utilization of dental care: Assessment and recommendations using Delphi technique. *J Pak Dent Assoc.* 2019;28(1):13-17. <https://doi.org/10.25301/JPDA.281.13>
- [9] Torppa-Saarinen E, Tolvanen M, Suominen AL, Lahti S. Changes in perceived oral health in a longitudinal population-based study. *Community Dent Oral Epidemiol.* 2018;46(6):569-75. <https://doi.org/10.1111/cdoe.12393>
- [10] Guo H, Zhou Y, Liu X, Tan J. The impact of the COVID-19 epidemic on the utilization of emergency dental services. *Journal Dent Sci.* 2020;15(4):564-7. <https://doi.org/10.1016/j.jds.2020.02.002>
- [11] Batista MJ, Lawrence HP, Sousa MdLR. Oral health literacy and oral health outcomes in an adult population in Brazil. *BMC Public Health.* 2018;18:60. <https://doi.org/10.1186/s12889-017-4443-0>
- [12] Fleming EB, Nguyen D, Afful J, Carroll MD, Woods PD. Prevalence of daily flossing among adults by selected risk factors for periodontal disease—United States, 2011–2014. *J Periodontol.* 2018;89(8):933-9. <https://doi.org/10.1002/JPER.17-0572>
- [13] Thompson AE, Anisimowicz Y, Miedema B, Hogg W, Wodchis WP, Aubrey-Bassler K. The influence of gender and other patient characteristics on health care-seeking behaviour: A QUALICOPC study. *BMC Fam Pract.* 2016;17:38. <https://doi.org/10.1186/s12875-016-0440-0>
- [14] Wong FM, Ng YT, Leung WK. Oral health and its associated factors among older institutionalized residents—A systematic review. *Int J Environ Res Public Health.* 2019;16(21):4132. <https://doi.org/10.3390/ijerph16214132>
- [15] Basharat S, Shaikh BT, Rashid HU, Rashid M. Health seeking behaviour, delayed presentation and its impact among oral cancer patients in Pakistan: A retrospective qualitative study. *BMC Health Serv Res.* 2019;19:715. <https://doi.org/10.1186/s12913-019-4521-3>
- [16] Watt RG, Daly B, Allison P, Macpherson LMD, Venturelli R, Listl S, et al. Ending the neglect of global oral health: Time for radical action. *Lancet.* 2019;394(10194):261-72. [https://doi.org/10.1016/S0140-6736\(19\)31133-X](https://doi.org/10.1016/S0140-6736(19)31133-X)
- [17] Ioannidou E. The sex and gender intersection in chronic periodontitis. *Front Public Health.* 2017;5:189. <https://doi.org/10.3389/fpubh.2017.00189>
- [18] Batra M, Gupta S, Erbas B. Oral health beliefs, attitudes, and practices of South Asian migrants: A systematic review. *Int J Environ Res Public Health.* 2019;16(11):1952. <https://doi.org/10.3390/ijerph16111952>
- [19] Chaudhary FA, Ahmad B, Bashir U. Dental health status and oral health behaviours of patients with facial burn in Pakistan. *BMC Oral Health.* 2019;19:127. <https://doi.org/10.1186/s12903-019-0819-0>

[20] Shiau HJ. Periodontal disease in women and men. *Curr Oral Health Rep.* 2018;5:250-4. <https://doi.org/10.1007/s40496-018-0195-x>

[21] Lipsky MS, Su S, Crespo CJ, Hung M. Men and oral health: A review of sex and gender differences. *Am J Mens Health.* 2021;15(3). <https://doi.org/10.1177/15579883211016361>

[22] Westergaard D, Moseley P, Sørup FKH, Baldi P, Brunak S. Population-wide analysis of differences in disease progression patterns in men and women. *Nat Commun.* 2019;10:666. <https://doi.org/10.1038/s41467-019-08475-9>

[23] Khan AA, Salman A, Chaudhry S, Ijaz A, Khan A. Empowering women dentists in Pakistan: Changing the landscape of oral health sector. *J Pak Dent Assoc.* 2021;30(3):142-3. <https://doi.org/10.25301/JPDA.303.142>

[24] District Police Office Sargodha. District overview. 2022 [cited 30 November 2022]. Available from: https://dposgd.punjabpolice.gov.pk/district_overview.

[25] Akram SJ, Yasmin R, Atif S, Rathore A, Anjum O, Arshad MB, et al. Barriers to the access of oral health care facilities among adults: An exploratory study from Lahore. *J Fatima Jinnah Med Uni.* 2020;14(3):105-9. <https://doi.org/10.37018/iyvh7026>

[26] Anthoney D, Syed FA, Khan M, Rathore A, Zahid E, Shah AA, et al. Impact of sociodemographic factors on the access to oral healthcare facilities among adults of high-and low-income families. *Pak J Med Health Sci.* 2021;15(2):438-42.

[27] Kadaluru UG, Kempraj VM, Muddaiah P. Utilization of oral health care services among adults attending community outreach programs. *Indian J Dent Res.* 2012;23(6):841-2. <https://doi.org/10.4103/0970-9290.111290>

[28] Fukai K, Takaesu Y, Maki Y. Gender differences in oral health behavior and general health habits in an adult population. *Bull Tokyo Dent Coll.* 1999;40(4):187-93. <https://doi.org/10.2209/tdcpublication.40.187>

[29] Su S, Lipsky MS, Licari FW, Hung M. Comparing oral health behaviours of men and women in the United States. *J Dent.* 2022;122:104157. <https://doi.org/10.1016/j.jdent.2022.104157>

[30] Ajayi DM, Arigbede AO. Barriers to oral health care utilization in Ibadan, South West Nigeria. *Afr Health Sci.* 2012;12(4):507-13. <https://doi.org/10.4314/ahs.v12i4.17>

[31] Deolia SG, Kela KS, Sawhney IM, Sonavane PA, Nimbalkar G, Reche A. Evaluation of oral health care seeking behavior in rural population of central India. *J Family Med Prim Care.* 2020;9(2):886-91. https://doi.org/10.4103/jfmpc.jfmpc_990_19

[32] Gambhir RS, Brar P, Singh G, Sofat A, Kakar H. Utilization of dental care: An Indian outlook. *J Nat Sci Biol Med.* 2013;4(2):292-7. <https://doi.org/10.4103/0976-9668.116972>